



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,177	11/25/2003	Jimmie R. Baran JR.	58962US002	7020

32692 7590 04/05/2006

3M INNOVATIVE PROPERTIES COMPANY  
PO BOX 33427  
ST. PAUL, MN 55133-3427

EXAMINER
----------

SANDERS, KRIELLION ANTIONETTE

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Ar

# Office Action Summary

Application No.

10/722,177

Applicant(s)

BARAN ET AL.

Examiner

Kriellion A. Sanders

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ducoffre et al, US Patent No. 6649672 in view of Houlihan, et al. US Patent No. 6,700,708.

The invention to Ducoffre et al relates to binders modified with nanoparticles for lacquer systems, to coating compositions containing them and to the use thereof. Preferred single- or two-component lacquer systems are those which contain epoxy-functional binders modified with nanoparticles, especially epoxy-functional (meth)acrylic copolymers modified with nanoparticles, in combination with carboxyl-functional crosslinking agents. In addition to the binders modified with nanoparticles, the coating compositions according to the invention can contain further binders conventionally employed in lacquers, which further binders can optionally be provided with reactive groups, especially with the same reactive groups as the binders modified with nanoparticles. The coating compositions according to the invention can be formulated without a solvent, or they contain organic solvents conventionally employed in lacquers, with or without water. Aqueous coating compositions may be present, for example, in the form of an emulsion. The emulsified state can be achieved by the addition of external emulsifiers, or the systems may contain ionic groups, which have a self-emulsifying action in water. The weight ratios of the solids in the coating compositions according to the invention,

Art Unit: 1714

total 100 wt. %, and range from 60 to 100 wt. % binders modified with nanoparticles to from 0 to 40 wt. % crosslinking agents to from 0 to 40 wt. % further binders.

The coating compositions according to the invention can be used to produce any desired coating layers, for example to produce primer, base lacquer, surfacer, finishing lacquer, clear lacquer layers. They can be applied by conventional application methods to any desired substrates, for example of metal, plastics, wood, glass. Examples of application methods are spread-coating, roller coating, blade coating, dip-coating, but especially spraying. After application, and after an optional phase of exposure to air or melting, the coating layers applied from the coating compositions according to the invention are dried or cured.

The coating compositions according to the invention can contain pigments and/or fillers, as well as additives conventionally employed in lacquers, in the amounts conventional in lacquers.

See col. 6, lines 23 -67.

Houlihan, et al. US Patent No. 6,700,708 discloses a micro-lens array including a base element and a plurality of lenses formed of an epoxy resin and nanoparticles. Patentee teaches that when the epoxy resin is uncured and filled with nanoparticles, the resin must have good solubility in a solvent, such as 1-methoxy-2-propanol acetate ("PGMEA") or methylethylketone ("MEK"). An ideal solvent should not only dissolve the resin but should also be miscible with the solvent used for the colloidal suspension, should be able to maintain the colloidal suspension for at least an hour, and should have sufficient volatility to allow for easy removal under vacuum with moderate heating (up to 100.degree. C.). Finally, if the epoxy is filled with nanoparticles, it should be able to retain a suspension of particles, remain process-able prior to exposure long

enough for molding (up to at least 20 minutes), and after cure maintain all the above noted requirements of the cured resin. See col. 4, lines 8-45.

Utilization of the 1-methoxy-2-propanol acetate of Houlihan et al as the solvent for the nanoparticle-containing epoxy resin compositions of Ducoffre et al would have been obvious to one of ordinary skill in the art at the time of applicant's invention to achieve good solubility and miscibility characteristics.

### ***Response to Arguments***

1. Applicant's arguments filed 1/23/06 have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a definition of compatibility which signifies that it is "assessed" by measuring the viscosity build in a "mixture" of the liquid with increasing amounts (percent by weight) of nanoparticles such that one of ordinary skill in the art would consider the particles as having a "compatibility with a material as opposed to being reacted with that material), are not recited in the rejected claim(s). Applicant is advised that the term "compatible" in the polymer arts may possess different definitions. The term often relates to the ability of resins or other substances within a resinous blend to form a homogenous mixture. In this case, the term, "compatible" as used in the present claims is not clearly ascertained to have the meaning applicant suggests.
2. Although the present claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3. Applicant's specification at pages 7 and 8 actually reads:

**“One method of assessing the compatability of surface-modified nanoparticles with liquid materials is to increase the viscosity of a mixture of the liquid with increasing amounts (percent by weight) of nanoparticles. A chart can be prepared comparing the viscosity increase with an increase in the weight percent of nanoparticles for various liquids. A liquid having a lower rate of viscosity build is more compatible with the nanoparticles than a liquid having a higher rate of viscosity build. By altering the surface-modifying groups, the relative compatibility with various liquids can be adjusted.**

**If the nanoparticles are not compatible with, or have very low compatibility with a particular liquid, they will not be sufficiently wet by that liquid and they will aggregate and separate out of the liquid. In such cases, meaningful viscosity build data generally cannot be obtained. For example, hydrophobically surface-modified nanoparticles are expected to have very low, or no compatibility with polar solvents (e.g., water and/or alcohols). The compatibility of the nanoparticles with such liquids would be ranked lower that the compatibility with the liquid showing the highest rate of viscosity build.**

4. Applicant is advised that excerpt from his specification relates to one method for assessing the compatibility of a nanoparticle to a liquid. This excerpt of the specification does not clearly support that the compatibility of the nanoparticles and liquids of the present claims is determined by this method. Applicant has acted as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning. The written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

Because the epoxy based coating compositions of Ducoffre et al may be formulated with organic solvents conventionally employed in lacquers, and since Houlihan et al discloses that when the epoxy resin of his invention is uncured and filled with nanoparticles, the resin must have good solubility in a solvent, such as 1-methoxy-2-propanol acetate ("PGMEA") or methylethylketone ("MEK"), utilization of the specific 1-methoxy-2-propanol acetate of Houlihan et al as the solvent for the nanoparticle-containing epoxy resin compositions of Ducoffre et al would have been obvious to one of ordinary skill in the art at the time of applicant's invention to achieve good solubility and miscibility characteristics. In this case, "compatibility" is considered to be represented by good solubility and miscibility characteristics.

Prior art cited on a form 1449 must include a month and year of publication to be fully considered.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


Art Unit: 1714

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122. The examiner can normally be reached on Monday through Thursday 6:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kriellion A. Sanders  
Primary Examiner  
Art Unit 1714

ks